Directory of
DOD Public Health Laboratory Services

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Directory of DoD Public Health Laboratory Services Introduces Biological Toxins

Toxins are defined as any toxic substance of natural origin produced by an animal, plant, or microbe. They are different from chemical agents such as VX, cyanide, or mustard in that they are not man-made. They are non-volatile, are usually not dermally active (except in the case of mycotoxins), and tend to be more toxic per weight than many chemical agents.

Biological toxins are limited as a persistent battlefield threat by their low probability of producing secondary or person-to-person exposures. The utility of many toxins as lethal military weapons is potentially limited by the inability to produce a large enough quantity of the toxin required for an aerosolized attack. Though not considered a threat for weapons of mass destruction, biological toxins are still militarily significant due to their ability to cause serious illness and incapacitate soldiers.

The Directory of Public Health Laboratory Services has begun to add both biological toxins and their resulting conditions to its list of searchable criteria. Descriptions of ricin, saxitoxin, and staphylococcus enterotoxin B are currently available for view. Information can be easily searched and located regarding the laboratories which are capable of testing for the toxin's presence, as well as the type of tests available and their expected turnaround times from sample receipt to results.

Laboratories Needed with Capability To Test for Monkeypox

Monkeypox is a rare smallpox-like disease of children in central Africa. It has recently made news in the United States after at least 4 confirmed cases of Monkeypox were reported in Wisconsin and Indiana, apparently spread through the Gambian rat to prairie dogs which were later sold by pet stores. Currently, none of the Directory's participating laboratories have come forward identifying themselves as capable of testing for the Monkeypox virus.

Primary inoculation site of Wisconsin child. Photo courtesy of Mary Jo Walicki.

Positive diagnosis is based on ELISA, along with the progression of lesions, histopathology, and virus isolation. On histological examination, epidermal cells contain eosinophilic cytoplasmic and intranuclear inclusions.

The pathogenesis of human monkeypox is very similar to that of smallpox, with the exception that viral entry from a wildlife source probably occurs via small lesions on the skin or oral mucous membranes. Viral entry may also occur via the respiratory tract in the rare cases of person-to-person transmission. Like smallpox, monkeypox virus replicates in lymphoid tissue, although it has a greater degree of lymphadenopathy. Infection manifests with the enlargement of cervical and inguinal lymph nodes, generalized pustular rash with smaller lesions, a fever, and minor toxemia. The smallpox-like rash begins to develop 2 to 3 days after febrile illness but is often "cropped" making it look like chickenpox. If your laboratory is equipped for Monkeypox virus diagnosis, please

take a moment to update your laboratory's testing capabilities or contact Jessica Charak with the Directory of DoD Public Health Laboratory Services at: charakj@afip.osd.mil or 202.782.2838.

SARS Added to the Directory

Severe Acute Respiratory Syndrome has been recently added to the Directory. The illness, widely known as SARS, was first isolated in April 2003. As of July 11, 2003, a cumulative total of 8,437 probable cases have been reported with 813 deaths. Patients who have been infected with the SARS Coronavirus will generally begin to show symptoms within 2-7 days. These symptoms include a fever greater than 100.4°F, headache, an overall feeling of discomfort, and body aches. Some people may also experience mild respiratory symptoms such as a dry cough and trouble breathing.

Initial diagnostic testing for suspected SARS patients may include chest radiograph, pulse oximetry, blood cultures, sputum Gram stain and culture, and testing for viral respiratory pathogens, notably influenza A and B and respiratory syncytial virus. In addition, PCR can be performed on paraffin-embedded or frozen tissue. Clinical specimens, such as throat swabs, nasal or nasal pharyngeal swabs, or sterile site specimens such as pleural fluid or CSF are the preferred specimens for evaluation.

Patients with SARS receive the same treatment that would be used for any patient with serious community-acquired atypical pneumonia. Therapy ranges from antivirals such as oseltamivir or ribavirin to steroids, which have been given orally or intravenously to patients in combination with ribavirin and other antimicrobials. In the absence of controlled clinical trials, however, the efficacy of these regimens remains unknown. Laboratory testing of antiviral drugs is being done to see if an effective treatment can be found.

The following laboratories are currently listed in the Directory for their ability to test for SARS: Virology Department at the Air Force Epidemiology Lab, USAMRIID, Landstuhl Regional Medical Center, Armed Forces Institute of Pathology, and the Naval Health Research Center.

Important Reminders:

- The Directory is now available online 24 hours a day, 7 days a week. It is linked to the AFIP and GEIS websites for easy access or can be found through Yahoo, Google, and other search engines.
- All laboratory information must be validated – it is imperative that you register your laboratory for access and then login to update its published information.
- Laboratory Joint Working Group video teleconference "Directory of DoD Public Health Laboratory" services presentation Tuesday, 5 August 2003.
- If your laboratory is equipped for Monkeypox virus diagnosis, please take a moment to update your laboratory's testing capabilities or contact Jessica Charak with the Directory of DoD Public Health Laboratory Services at: charakj@afip.osd.mil or 202.782.2838.

Directory FAQs:

WHY THE NEED FOR SUCH A DIRECTORY?
The ever-present threat of emerging and re-emerging infectious materials and the constant change of testing services available within laboratories, has led to the need for the development of a Directory of Public Health Laboratory Services database. With increased deployment of military personnel to regions of the world haunted by infectious diseases uncommon to the native United States, this virtual internet database was developed with specific military relevance in mind.

WHAT INFORMATION IS ACCESSIBLE?
The directory currently allows registered users to quickly search hundreds of infectious agents and their associated diseases. Users can also find contact information for all contributing military laboratories, as well as the types of confirmatory tests available, turnaround time, and the associated lab fees.

WHY SHOULD YOUR LABORATORY CONTRIBUTE?
The usefulness of this directory is directly correlated with the number of contributing laboratories providing information about their specific testing capacities. Your contribution will help aid in the achievement of a comprehensive directory of laboratories encompassing all four branches of the armed forces. It will both increase the efficacy of the directory and help to expedite its introduction into the military community.

Thank you to the contributing laboratories:

Air Force Epidemiology Lab - Brooks AFB
Air Force Epidemiology Lab (Bacteriology) - Brooks AFB
Air Force Epidemiology Lab (HIV) - Brooks AFB
Air Force Epidemiology Lab (Immunology) - Brooks AFB
Air Force Epidemiology Lab (Virology) - Brooks AFB
Armed Forces Institute of Pathology (Cellular Pathology) - AFIP
Armed Forces Institute of Pathology (Infectious Disease) - AFIP
Armed Forces Research Institute of Medical Science - AFRIMS
Brooke Army Medical Center - BAMC
David Grant Medical Center - Travis AFB
Eisenhower Medical Center - EAMC
Keesler Medical Center - Keesler AFB
Landstuhl Regional Medical Center - LRMC
Madigan Army Medical Center - MAMC
Malcolm Grow Medical Center - Andrews AFB
National Naval Medical Center - NNMC
Naval Health Research Center - NHRC
Naval Medical Center Portsmouth - NMCP
Naval Medical Center San Diego - NMSD
Naval Medical Research Center - NMRC
Naval Medical Research Center Detachment - NMRCD
Naval Medical Research Unit #2 - NAMRU-2
Naval Medical Research Unit #3 - NAMRU-3
Naval Training Center Great Lakes - NTCGL
Scott Medical Center - Scott AFB
Tripler Army Medical Center - TAMC
Tripler Army Medical Center Pacific Region Food Analysis Lab - TAMC FAL
US Army Medical Research Institute of Infectious Diseases - USAMRIID
US Army Medical Research Unit Kenya - USAMRU-K
Walter Reed Army Institute of Research - WRAIR
Walter Reed Army Medical Center - WRAMC
Wilford Hall Medical Center - Lackland AFB (WHMC)
William Beaumont Army Medical Center - WBAMC
Womack Army Medical Center - WAMC
Wright-Patterson Medical Center - Wright Patterson AFB

If your laboratory is interested in adding testing capabilities for any of the diseases/agents mentioned in this newsletter, please register at http://198.97.78.142/vphl/VPHLASP/NewUser_Profile.asp
If you are already registered, log onto the Directory's Homepage to read and edit your laboratory's information.